

รูปแบบความสัมพันธ์เชิงสาเหตุของความฉลาดทางสังคมของนักศึกษาพยาบาล A Causal Model of Social Intelligence among Nursing Students

นิพนธ์ต้นฉบับ

Original Article

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บทคัดย่อ

Abstract

วัตถุประสงค์: เพื่อทดสอบรูปแบบความสัมพันธ์เชิงสาเหตุของความฉลาดทางสังคมของนักศึกษาพยาบาล **วิธีการศึกษา:** การวิจัยเชิงพรรณนาชนิดวิเคราะห์ความสัมพันธ์เชิงทำนายนี้ศึกษาในกลุ่มตัวอย่างเป็นนักศึกษาพยาบาลระดับปริญญาตรีที่อยู่ในจังหวัดชลบุรีจำนวน 450 คน ที่มีคุณสมบัติตามที่กำหนด และคัดเลือกเข้ารับการวิจัยด้วยวิธีการสุ่มแบบแบ่งชั้นภูมิ เก็บรวบรวมข้อมูลด้วยแบบสอบถามชนิดเลือกตอบจำนวน 7 ฉบับ ได้แก่ แบบสอบถามข้อมูลส่วนบุคคล แบบประเมินความฉลาดทางสังคม แบบประเมินความฉลาดทางอารมณ์ แบบประเมินรูปแบบการเรียนรู้ แบบประเมินการปรับตัวของนักศึกษาพยาบาล แบบประเมินพฤติกรรมการติดสันทนาการออนไลน์ และแบบประเมินสัมพันธภาพในครอบครัว วิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนา และการวิเคราะห์รูปแบบสมการโครงสร้าง **ผลการศึกษา:** ผลการวิเคราะห์รูปแบบสมการโครงสร้างพบว่ารูปแบบความสัมพันธ์เชิงสาเหตุที่ปรับปรุงมีความสอดคล้องกับข้อมูลเชิงประจักษ์ และสามารถทำนายความแปรปรวนของความฉลาดทางสังคมของนักศึกษาพยาบาลได้ร้อยละ 72 ($\chi^2 = 403.85, P\text{-value} < 0.001, df = 101, GFI = 0.91, CFI = 0.97, RMSEA = 0.08$) ซึ่งความฉลาดทางอารมณ์มีอิทธิพลโดยตรงทางบวกกับความฉลาดทางสังคมของนักศึกษาพยาบาล ($\beta = 0.42, P\text{-value} < 0.001$) ส่วนการปรับตัวของนักศึกษาพยาบาล พฤติกรรมติดสันทนาการออนไลน์ และสัมพันธภาพในครอบครัวมีอิทธิพลทางอ้อมต่อความฉลาดทางสังคมของนักศึกษาพยาบาลโดยส่งผ่านความฉลาดทางอารมณ์ ($\beta = 0.28, P\text{-value} < 0.001; \beta = -0.08, 0.03, 0.03$, ตามลำดับ, $P\text{-value} < 0.05$ ทั้งหมด) สรุป: ผลการศึกษานี้เป็นหลักฐานเชิงประจักษ์เกี่ยวกับรูปแบบความสัมพันธ์เชิงสาเหตุของความฉลาดทางสังคมของนักศึกษาพยาบาลระดับปริญญาตรี ซึ่งเป็นประโยชน์ต่อการพัฒนากิจกรรมหรือโปรแกรมที่เหมาะสมสำหรับการเสริมสร้างศักยภาพของนักศึกษาพยาบาลในการทำงานหรืออยู่ร่วมกับผู้อื่น

คำสำคัญ: ความฉลาดทางสังคม, ความฉลาดทางอารมณ์, นักศึกษาพยาบาล

Objective: To test a causal model of social intelligence among undergraduate nursing students. **Methods:** A predictive correlational study was performed with a stratified random sampling of 450 undergraduate nursing students in Chonburi who met criteria. Data were collected using seven self-administered questionnaires namely Nursing Student Information Form, Social Intelligence, Emotional Intelligence, Learning Style, Nursing Adaptation, Chat Addiction, and Family Relationship Questionnaires. The second to seventh questionnaires had Cronbach's alpha coefficients of 0.83, 0.90, 0.89, 0.85, 0.92 and 0.84, respectively. Descriptive statistics and structural equation model were used for data analysis. **Results:** Structural equation modeling revealed that the modified model fitted with empirical data, explaining 72% of variance in social intelligence among nursing students ($\chi^2 = 403.85, P\text{-value} < 0.001, df = 101, GFI = 0.91, CFI = 0.97, RMSEA = 0.08$). Emotional intelligence had a positive direct impact on nursing students' social intelligence ($\beta = 0.42, P\text{-value} < 0.001$). Moreover, nursing student adaptation, chat addiction, learning style, and family relationship had indirect effects on social intelligence of nursing students via emotional intelligence ($\beta = 0.28, P\text{-value} < 0.001; \beta = -0.08, 0.03, 0.03$, respectively, $P\text{-value} < 0.05$ for all). **Conclusion:** This research finding provides empirical knowledge about the mechanisms of casual model of social intelligence among undergraduate nursing students. This might develop appropriate interventions to improve nursing students' ability to stay and work with others.

Keywords: social intelligence, emotional intelligence, nursing students

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Introduction

Nursing students are responsible for coordinating and manifesting with others to enhance good health for the public. They need to be able to adapt themselves to cooperating with personnel working in outpatient departments and inpatient wards, achieving their supervising instructor's requirements, and dealing with the needs of both the patients themselves and their relatives.¹ They have to adapt themselves to various

situations including performing their tasks confidently, behaving properly in society, and providing service effectively. On the other hand, lack of adaptability negatively affected their mental health.² Literature review found that nursing students are a vulnerable group who develops mental health problems such as depression³ which can affect their learning achievement,⁴ and cause a high rate dropout from college.⁵

Nursing students need high interpersonal and social skills to meet the set goals of their responsibilities. The literature reviewed states that social intelligence is an important factor facilitating performance to adapt to society, develop good social skills, and also to enhance learning and task performance.^{6,7} Social Intelligence is the ability to live happily and harmoniously in society.⁶ It is also the ability to build positive feelings in others and to elicit others' participation.⁸ The literature reviewed revealed that people with high social intelligence can make others realize their own self-esteem, openness for love and respect, and also attract and adapt themselves to others and to the environment harmoniously.^{6,8} Similarly, nursing students who have high social intelligence will be skillful in interacting with others, friendly, and sincere and honest with themselves or others. They will be able to understand and analyze situations, interpret other's intention effectively and also have a high ability to build good interpersonal relationships. An understanding of the pattern of relationship among factors related to social intelligence among Thai nursing students is needed. The emerging knowledge will be useful for the instructors to develop programs or activities enhancing social intelligence. Nursing students with a high degree of social intelligence will be able to adjust themselves, work with others, and provide healthcare under the limitations of their profession.

According to Goleman's social intelligence concept (2006)⁶ and related literature, it was found that factors influencing social intelligence include emotional intelligence, learning style, nursing adaptation, chat addiction, and family relationships. People with high emotional intelligence could control, understand, and inspire themselves. They also possess pride and self-esteem which in return brings about high social intelligence. Emotional intelligence is positively related to adaptation among the first year nursing students at Boromarajonani College of Nursing, Suphanburi ($r = 0.639$, P -value < 0.01)⁹ and is related to the social intelligence of intern instructors in university.¹⁰ Moreover, the learning style which is their personal preference for acquiring information is an integration of physical appearance, emotion, and subjectivity. Learning style has positively correlated with emotional intelligence among Jordanian undergraduates ($r = 0.42$, P -value < 0.05).¹¹

Nursing students who have a high ability of nursing adaptation tend to have a higher emotional intelligence ($r = 0.46$, P -value < 0.001).¹² The results of Yongyingyuen (2003)¹³

reveal that adaptation to peers ($\beta = 0.311$, P -value < 0.01), adaptation to practice ($\beta = 0.318$, P -value < 0.01), and adaptation to theoretical lessons ($\beta = 0.217$, P -value < 0.01) had a positive direct effect on emotional intelligence among Thai nursing students. Family relationship is basically an important factor for adolescents to contribute to good relationships with others outside the family.¹⁴ Nursing students who have close family relationships tend to be socially intelligent and can interact or build good relationships with others. A study revealed that family relationship positively affected the student's emotional intelligence.¹⁵

On the other hand, chat addiction is the nursing students' uncontrollable behavior to excessive use of the Internet for on-line chatting and it seriously impedes other routine activities.¹⁶ A study revealed that Internet addiction had a negative impact on the emotional intelligence of university students ($r = -0.30$, P -value < 0.01).¹⁷ Previous studies have provided a principle knowledge base for understanding factors associated with social intelligence among other groups of adolescents. However, there is a lack of studies examining the integration of multiple factors influencing social intelligence among Thai nursing students. Therefore, this study aimed to test a hypothesized model of social intelligence in order to understand interactions of multiple factors as well as their mechanisms influencing social intelligence among Thai nursing students. The conceptual framework was based on Goleman's social intelligence concept (2006)⁶ and the relevant literature. According to Goleman's social intelligence concept (2006)⁶ and the relevant literature, selected factors having impacts on social intelligence included emotional intelligence, learning style, nursing student adaptation, chat addiction, and family relationship. This new integrative model hypothesized that the selected factors (learning style, nursing adaptation, chat addiction, and family relationship) had direct effects on social intelligence through the mediating effects of emotional intelligence. The illustration of causal relationship of social intelligence of nursing student is shown in Figure 1.

Methods

This cross-sectional, predictive correlational study was conducted to 1) examine the consistency of the hypothesized causal relationship model of social intelligence with empirical data, and 2) identify the direct and indirect effects of factors predicting the social intelligence among undergraduate

nursing students in Chonburi province, Thailand. Study population was 730 undergraduate nursing students enrolled in academic year 2016 at the Faculty of Nursing of a university in Chonburi province. Using stratified random sampling, 450 nursing students at the Faculty of Nursing were selected to participate. Sample size estimation was based on Kline's (2015)¹⁸ recommendation for a ratio of 15 respondents per parameter estimated. For this research, based on 30 parameters, the sample size of at least 450 observations or people was needed.

Research instruments

Seven self-administered questionnaires were used to collect data as follows. In the **first section**, Nursing Student Information Form included questions about basic information of students including sex, age, study level, GPA, family income, personal expenses, etc. In the **second section**, Social Intelligence Questionnaire developed by Suwittayarat (2014)¹⁹ based on Goleman's concept (2006)⁶ was used to collect social intelligence. It includes 35 items on a 4-level rating scale involving three domains: social awareness, social cognition, and social skill. Possible scores range from 0 – 96 points where higher scores indicate more social intelligence competency. It demonstrated a good validity and has acceptable reliability among university students with a Cronbach's alpha coefficients of 0.85.¹⁹ For the analysis in this study, the factor loadings for social awareness, social cognition and social skills of social Intelligence ranged from 0.62 to 0.82 as illustrated in Figure 2. All loadings were greater than 0.50 and statistically significant.

In the **third section**, Emotional Intelligence Questionnaire developed by the Department of Mental Health, Ministry of Public Health, Thailand (2000) was included.²⁰ It is composed of 52 items with a 4-level rating scale. The measure captures three dimensions including virtue, competence, and happiness. Possible scores range from 52 to 208 points where higher scores indicate greater emotional intelligence. It demonstrated good validity and acceptable reliability with a Cronbach's alpha coefficient of 0.90.⁹ For this study, the factor loadings of virtue, competence, and happiness for emotions were 0.94 to 1.00 as illustrated in Figure 2. All loadings were acceptable (> 0.70) and statistically significant.

Learning Style Questionnaire developed by Grasha and Reichmen (1975)²¹ and translated into Thai by Visudtibhan

and Disornatiwat (2015)²² was included in the **fourth section**. It comprises 60 items with a 5-level rating scale evaluating 6 styles of learning namely avoidant, collaborative, competitive, dependent, independent, and participant. Students are categorized into particular styles depending on their total score. This instrument had good validity and a high level of reliability among nursing students with a Cronbach's alpha coefficient of 0.87.²¹ For this study, the factor loadings of avoidant, collaborative, competitive, dependent, independent, and participant learning styles were 0.33 to 0.91 as illustrated in Figure 2.

In the **fifth section**, Nursing Student Adaptation Questionnaire developed by Yongyingyuen (2003)¹³ was used to assess nursing students' adaptation in four aspects, specifically theoretical adaptation, practical adaptation, adaptation with teacher and with friends. It is composed of 36 items with a 5-level rating scale. Students are categorized into each of the four aspects depending on their total score of that particular aspect. This instrument had good validity and a high level of reliability among nursing students with a Cronbach's alpha coefficient of 0.93.¹³ For this study, the factor loadings of four aspects of learning style were 0.58 to 0.78 as illustrated in Figure 2.

In the **six section**, Chat Addiction Questionnaire developed by Young (1998)¹⁶ and adapted to the Thai context by Thongkambunjong and colleagues (2011).²³ was used to measure chat addiction. It consists of 12 items with a 6-level rating scale. Possible scores range from 12 to 144 points where a higher score indicates a greater chat addiction. It demonstrated good validity and acceptable reliability with a Cronbach's alpha coefficient of 0.93.²³

In the **last section** of the questionnaire, Family Relationship Questionnaire developed by Resnick and colleagues (1997)¹⁴ and translated into Thai by Nopparat (2000).²⁴ was included to measure family relationship. It comprises 12 items with a 5-level rating scale to evaluate family bonds, attention perception, family relationship satisfaction, affection perception, and perception of fondness of family members. Possible scores range from 12 to 60 points. A higher score indicates a closer family relationship. It demonstrated good validity and acceptable reliability with Cronbach's alpha coefficients of 0.83 - 0.85.²⁴

Instrument quality assurance

To establish construct validity for the latent variables in the model, the full confirmatory factor analysis (CFA) was conducted including all seven latent variables and their respective indicators using the Linear Structural Relationships (LISREL) program. The latent variable factor loadings in the CFA model were equivalent to those reported in the final model. The finding showed that the range of factor loadings of observed variables and latent variable in all forms were 0.33 - 1.00 as shown in Figure 2. All loadings were statistically significant with the majority values of greater than 0.30. In terms of internal consistency reliability, all scales had a high level of reliability with Cronbach's alpha coefficients of social intelligence, emotional intelligence, learning style, nursing student adaptation, chat addiction, and family relationship questionnaires of 0.83, 0.90, 0.89, 0.85, 0.92, and 0.84, respectively.

Ethical approval and data collection

The data were collected from March to May, 2018. Permission to conduct this study was obtained from the Institutional Review Board (IRB) of Burapha University (ethical approval no. Hu 061/2560). The researcher informed the participants of the objectives, data collection process, timeline, and rights of rejection or acceptance to participate in the research. When the participants had a clear understanding of the research process, they were requested to give their consent, and whether they participated in the research or not did not affect their attendance of any courses. Data were collected in a private room providing adequate time (40 – 50 min). If there was any inquiry, the participants reserved the right to ask the researcher at any time. After all forms were returned, data analysis was conducted. The given data and the participant's personal information were reserved confidentially. The results were presented as the summary not individual participants.

Data analysis

The data were analyzed using a computer software package. Descriptive statistics including frequency with percentage, mean with standard deviation and Pearson's product moment coefficient were employed. Statistical assumptions underlying the structural equation model (SEM) including normality, linearity, homoscedasticity and

multicollinearity were tested. The hypothesized model was tested using the structural equation model (SEM). The direct and indirect effects of independent factors on social intelligence were estimated using the maximum likelihood method via the LISREL program. Goodness of fit (Chi-square statistics) and Goodness-of-Fit Index (GFI) (CFI and RMSEA) between the hypothesized model and the empirical data were tested. The causal model was adjusted for proper congruence. Prior to estimating the full model, confirmatory factor analyses (CFA) was conducted to validate the construct validity of latent variables.

Results

The majority of the participants were female (94%). The overall mean age of participants was 20.01 years with a standard deviation of 1.39 and an age range of 17 to 24 years. College years were evenly distributed with 22.90%, 28.00%, 22.90%, and 26.20% of the first, second, third and fourth year of college, respectively.

The overall mean grade point average (GPA) of participants was 3.19 with a standard deviation of 0.37. The average income was 4,805 baht per month. Most of the participants (77.10%) indicated sufficient income. Moreover, 32% lived in a university dormitory; while 31% lived in the Faculty of Nursing dormitory and 32% in private dormitories outside the university, and 5% lived with their families. The majority of the participants (94%) voluntarily enrolled in the nursing program.

The test on the causal model of social intelligence among Thai nursing students

The findings indicated that the mean score of social intelligence of the subjects was 106.08 (± 9.04) points. Moreover, the mean score of emotional intelligence, learning style, nursing adaptation, chat addiction and family relationships were 162.83 (± 15.66), 202.86 (± 14.51), 130.02 (± 12.68), 26.57 (± 9.97), and 47.96 (± 7.02) points, respectively. Furthermore, Pearson's product moment coefficients for all variables were in a range -0.232 to 0.725 (Table 1).

Based on the structural equation modeling (SEM), some Goodness-of-Fit Indexes (GFI) of the hypothesized model of social intelligence were at an unacceptable level ($\chi^2=982.62$, P -value < 0.001, $df = 122$, GFI = 0.79, CFI = 0.90, RMSEA =

0.13); therefore, the model was reduced to an acceptable level ($\chi^2=403.85$, P -value < 0.001, $df=101$, $GFI = 0.91$, $CFI = 0.97$, $RMSEA = 0.08$). The modified model could explain 72% of the variance in social intelligence among nursing students (Figure 2).

Emotional intelligence had a direct impact on social intelligence with statistical significance ($\beta = 0.42$, P -value < 0.001) (Figure 2). Nursing adaptation had positive direct and indirect impacts on the social intelligence of nursing students via emotional intelligence ($\beta = 0.50$ and 0.28 , respectively, P -

value < 0.001 for both). Chat addiction also had negative direct and indirect impacts on their social intelligence via emotional intelligence ($\beta = -0.06$ and -0.08 , respectively, P -value < 0.05 for both). Furthermore, both learning style and family relationship had equally positive indirect impacts on the social intelligence of nursing students via emotional intelligence ($\beta = 0.03$, P -value < 0.05), but they did not have direct effects on social intelligence ($\beta = 0.03$ and 0.00 , P -value > 0.05) (Figure 2). The standardized direct effect, indirect effect, and total effect of the latent variables on social intelligence are summarized in Table 2 and Figure 2.

Table 1 Means, Standard deviations and Correlations for key variables (N = 450).

Variables	Mean (SD)	Pearson's correlation coefficients (r)					
		1	2	3	4	5	6
1. Social Intelligence	106.08 (9.04)	1					
2. Emotional Intelligence	162.83 (15.66)	0.704***	1				
3. Learning Styles	202.86 (14.51)	0.551***	0.579***	1			
4. Nursing Adaptation	130.02 (12.68)	0.592***	0.704***	0.725***	1		
5. Chat Addiction	26.57 (9.97)	-0.232**	-0.390***	-0.152**	-0.238**	1	
6. Family Relationship	47.96 (7.02)	0.323***	0.440***	0.331***	0.428***	-0.247**	1

* P -value < 0.05; ** P -value < 0.01; *** P -value < 0.001.

Table 2 Standardized direct effects (DE), indirect effects (IE), and total effects (TE) of latent variables in the model (N = 450).

Independent variables	Social Intelligence		
	DE	IE	TE
Emotional Intelligence	0.42***		0.42***
Nursing Adaptation	0.50***	0.28***	0.78***
Learning Styles	0.03	0.03*	0.06
Chat Addiction	-0.06*	-0.08*	-0.14**
Family Relationship	0.00	0.03*	0.03
Explained variance	$R^2 = 0.72$		
Independent variables	Emotional Intelligence		
	DE	IE	TE
Nursing Adaptation	.66***	-	.66***
Learning Styles	.07*	-	.07*
Chat Addiction	-.18***	-	-.18***
Family Relationship	.08*	-	.08*
Explained variance	$R^2 = 0.52$		

* P -value < 0.05; ** P -value < 0.01; *** P -value < 0.001.

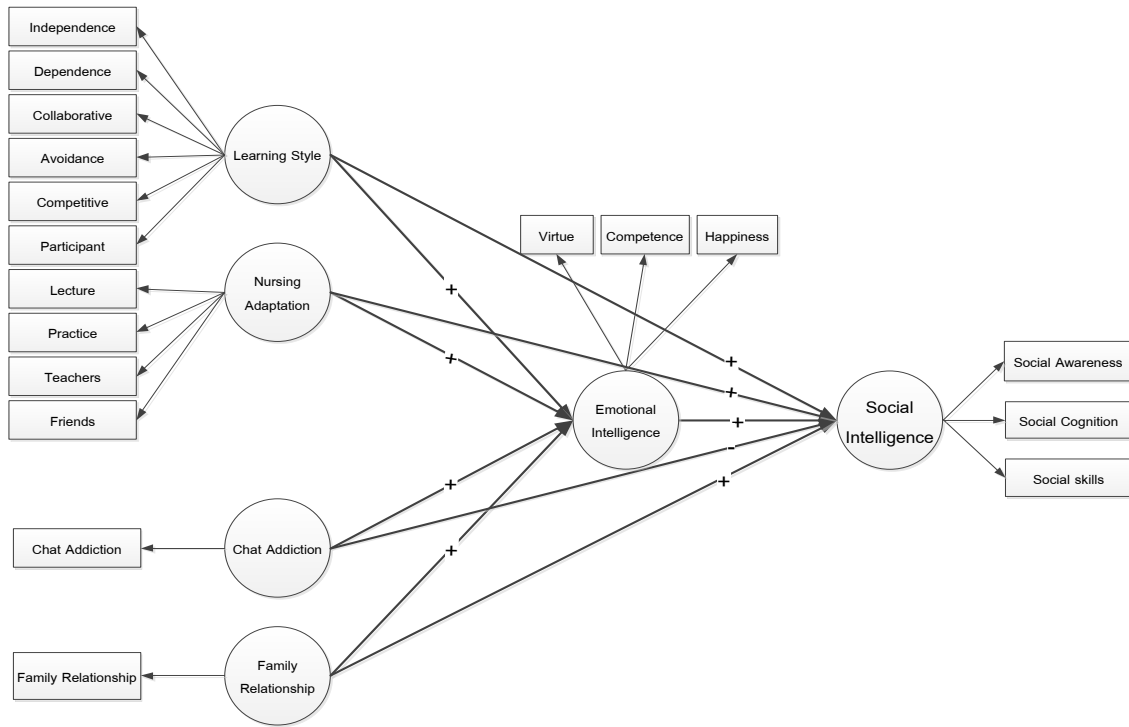


Figure 1 Conceptual model of social intelligence for nursing students.

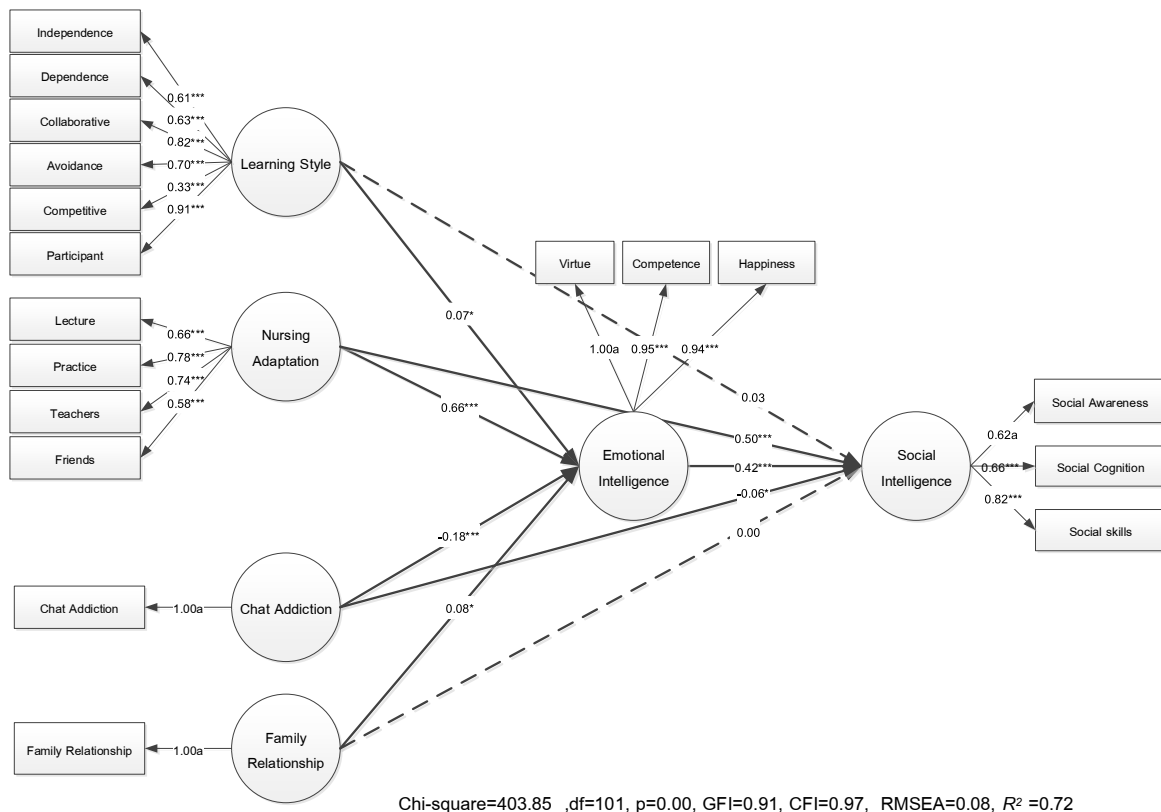


Figure 2 Structural model illustrating the study factors and the paths of their influence on social intelligence for nursing students. **Note:** Solid arrows represent statistically significant effects; dashed arrows represent non-significant effects. Path coefficients are standardized values. A superscripted "a" indicates that path coefficient was fixed. * *P*-value < 0.05; ** *P*-value < 0.01; *** *P*-value < 0.001.

Discussions and Conclusion

The results indicated that the hypothesized model could explain social intelligence variance at 72% ($R^2 = 0.72$, P -value < 0.001). Overall, the findings support Goleman's social intelligence concept (2006)⁶ and the relevant literature, revealing that emotional intelligence has a positive direct impact on social intelligence with statistical significance ($\beta = .42$, P -value < 0.001). This is consistent with findings from Kaur & Singh (2013)¹⁰ which revealed that emotional intelligence had a positive impact on social intelligence among university intern instructors. According to Goleman's concept (2006)⁶, social intelligence can greatly promote association, build relationships, and allow individuals to work as a team to achieve the set goals. An individual with a high degree of emotional intelligence truly understands him/herself and is able to build interpersonal relationships. They can adjust themselves, live a happy life and develop self-motivation and skills to build a good relationship with others. When nursing students have great emotional intelligence, they will be able to control, understand, motivate, and be proud of and be satisfied with themselves, which can lead to a high social awareness and social facility. All of these positive attributes lead to high a degree of social intelligence and adaptation, and a peaceful mind.⁹

As hypothesized in the model, the findings showed that nursing adaptation has a positive direct effect on social intelligence with statistical significance ($\beta = 0.50$, P -value < 0.001) and has a positive indirect impact on emotional intelligence ($\beta = 0.28$, P -value < 0.001). Nursing students with a high degree of adaptation tend to be emotionally and socially intelligent. This is in agreement with the result of Kundu, Saha, and Mondal (2015)²⁵ which revealed that adaptation was positively related to the university student's social intelligence ($r = 0.49$, P -value < 0.01). Adaptation skill can facilitate people to understand their own and others' situation and needs, and it also increases their emotional intelligence.¹²

Furthermore, chat addiction has a negative direct effect on social intelligence via emotional intelligence with statistical significance ($\beta = -0.06$, P -value < 0.05) and it has a negative indirect effect on emotional intelligence ($\beta = -0.08$, P -value < 0.05), consistent with findings from Hamissi, Babaie, Hosseini and Babaie (2013)¹⁷ which revealed that Internet addiction, especially chat addiction, negatively affected university students' emotional intelligence ($r = -0.30$, P -value < 0.01).

Nursing students who are addicted to on-line chatting tend to have changed their communication channel from face-to-face chat to social media. They are self-centered, lack self-understanding, and have decreased interaction with others, which can negatively affect emotional intelligence and social intelligence.²⁶

The findings showed that learning style has a positive indirect impact on social intelligence via emotional intelligence ($\beta = 0.03$, P -value < 0.05) but no direct impact on social intelligence ($\beta = 0.03$, P -value > 0.05). This agrees with Mahasneh's study¹¹ which revealed that learning style was positively related to the emotional intelligence of Jordanian undergraduates with statistical significance. The explanation is based on Bandura's observational learning theory (1986)²⁷ and literature showing that an individual's learning style is initiated by interaction between learners and their social context. Different learning styles could affect potential and skill development differently. There are six learning styles namely avoidant, collaborative, competitive, dependent, independent, and participant.²¹ Each learning style plays an important role in the development of cognitive intelligence, emotional intelligence, and social intelligence. As a result, nursing students who have active learning styles tend to understand themselves and others, possess social facility, and be able to live with others, which can lead to development of a high level of emotional and social intelligence.

Finally, the results indicate that family relationship has a positive indirect effect on social intelligence via emotional intelligence ($\beta = 0.03$, P -value < 0.05) but no direct effect on social intelligence ($\beta = 0.00$, P -value > 0.05). This is congruent with Bhatia's study (2012)¹⁵ which revealed that family relationship was positively related to the student's emotional intelligence. The explanation from the literature indicates that family bond is a significant fundamental factor forming an adolescent's mindset, beliefs, and attitudes, learning skill, and interpersonal skill. Adolescents with a close family relationship can learn basic relationship skills with their family and know how to build relationships with others in a positive way. They can learn things, understand themselves, control their emotions, inspire themselves to achieve set goals, and build interpersonal relationships and live with others happily.²⁵ Therefore, nursing students who closely bond with their parents, and have been taken good care of and loved by their family members, tend to learn from that relationship and acquire high degrees of emotional intelligence.

This study has some limitations. The study described the effects of the psychosocial variables on nursing students' social intelligence at a specific time point, but the cross-sectional design precluded drawing causal inferences among these variables. As designed, this study was not able to determine the causal order of effects; it might be, for instance, that the nursing students' social intelligence itself was driving the associations observed here. Ultimately experimental intervention designs will be needed to test interventions based on this evolving conceptual model.

In conclusion, this research finding contributes to an important discussion on how nursing instructors prepare nursing students to work with others in healthcare service. In this study, we found that nursing adaptation, chat addiction, learning style, and family relationships had indirect effects on the social intelligence of nursing students via emotional intelligence. These findings provide an empirical knowledge for developing appropriate interventions to improve nursing students' social intelligence by enhancing their emotional intelligence and supporting nursing adaptation, learning style, and family relationships as well as decreasing chat addiction.

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